

What is claimed is:

1. A method for generating recommendations over a computer network, comprising:  
collecting user events across a plurality of domains in a database;  
receiving a triggering event for recommendations;  
analyzing the user events to formulate correlations between the user events in the database; and  
generating recommendations in response to the triggering event in accordance with the correlations between the user events in the database.
2. The method of claim 1, wherein collecting user events comprises:  
receiving a user event from the plurality of domains, wherein the user event includes one or more user event parameters;  
validating the user event parameters in accordance with a predetermined set of rules;  
if the user event fails to meet one of the predetermined set of rules, rejecting the user event; and  
if the user event meets the predetermined set of rules, storing the user event in the database.
3. The method of claim 2, wherein validating a particular user event parameter comprises:  
if the particular user event parameter exists in the database, continue validating another user event parameter until all user event parameters are validated; and  
if the particular user event parameter does not exist in the database, checking whether a predefined dynamic updating configuration corresponding to the particular user event parameter is enabled;  
if the dynamic updating configuration corresponding to the particular user event parameter is enabled, adding the particular user event parameter to the database; and  
if the dynamic updating configuration corresponding to the particular user event parameter is not enabled, rejecting the user event.
4. The method of claim 2, wherein validating the user event parameters comprises:  
validating the user event domain;  
validating the user event type;  
validating the user event value;

validating the user event item; and  
validating the user identifier.

5. The method of claim 1, wherein analyzing the user events comprising:  
applying a collaborative filter on the user events to compute correlation values  
between the user events; and  
storing the correlation values in a similarity database.
6. The method of claim 1 further comprising:  
receiving a request for recommending similar items; and  
generating recommendations of similar items in accordance with the correlations  
between user events in the database.
7. The method of claim 6 further comprising generating recommendations of similar  
items in accordance with a priority scheme.
8. The method of claim 6, wherein generating recommendations of similar items  
comprises:  
validating the request, wherein the request includes a set of predefined parameters;  
if source domains are specified, generating a first list of recommendations in  
accordance with the source domains; and  
if the source domains are not specified, generating the first list of recommendations  
in accordance with all available domains in the database.
9. The method of claim 8, wherein generating the first list of recommendations  
comprises:  
if the first list of recommendations is less than or equal to a predefined minimum  
number of items, returning the first list of recommendations; and  
if the first list of recommendations is greater than the predefined minimum number  
of items, improving the first list of recommendations in accordance with correlation values  
and the set of predefined parameters.
10. The method of claim 9, wherein improving the first list of recommendations  
comprises:  
forming a second list of recommendations from items of the first list of  
recommendations having a correlation value at or above a predefined threshold;

if the second list of recommendations is less than or equal to the predefined minimum number of items, selecting a third list of recommendations comprising the minimum number of items prioritized according to correlation value from items of the first list of recommendations and returning the third list of recommendations; and

if the second list of recommendations is greater than the predefined minimum number of items, improving the second list of recommendations in accordance with the correlation values and the set of predefined parameters.

11. The method of claim 10, wherein improving the second list of recommendations comprises:

if the second list of recommendations is less than or equal to a predefined maximum number of items, returning the second list of recommendations; and

if the second list of recommendations generated is greater than the predefined maximum number of items, further improving the second list of recommendations in accordance with the predefined source domains in the request.

12. The method of claim 11, wherein the step of further improving comprises:

separating the second list of recommendations into a plurality of groups in accordance with the predefined source domains;

(a) traversing each group one at a time, selecting a recommendation having the highest correlation value to form a fourth list of recommendations;

(b) repeating step (a) until the fourth list of recommendations equal to the predefined maximum number of items; and

returning the fourth list of recommendations.

13. The method of claim 1 further comprising:

receiving a request for recommending personalized items; and

generating personalized recommendations in accordance with the correlations between user events in the database.

14. The method of claim 13, wherein generating the personalized recommendations comprises:

validating the request, wherein the request includes a set of predefined parameters;

retrieving a first list of items the user shown preference from the database, wherein each item has a correlation value greater than or equal to a predefined threshold;

(a) creating a set of recommendations of similar items for each item the user has shown preference;

(b) storing the set of recommendations of similar items into a first list of recommendations; and

(c) repeating steps (a) and (b) until all members of the first list of items are traversed; and

refining the first list of recommendations in accordance with the correlation values and a set of predefined parameters.

15. The method of claim 14, wherein refining the first list of recommendations comprises:

if the first list of recommendations is less than or equal to the predefined minimum number of items, returning the first list of recommendations; and

if the first list of recommendations is greater than the predefined minimum number of items, improving the first list of recommendations in accordance with the correlation values and the set of predefined parameters.

16. The method of claim 15, wherein improving the first list of recommendations comprises:

forming a second list of recommendations from items of the first list of recommendations having a correlation value at or above a predefined threshold;

if the second list of recommendations is less than or equal to the predefined minimum number of items, selecting a third list of recommendations comprising the minimum number of items prioritized according to correlation value from items of the first list of recommendations and returning the third list of recommendations;

if the second list of recommendations is greater than the predefined minimum number of items, improving the second list of recommendations in accordance with the correlation values and the set of predefined parameters.

17. The method of claim 16, wherein improving the second list of recommendations comprises:

if the second list of recommendations is less than or equal to a predefined maximum number of items, returning the second list of recommendations; and

if the second list of recommendations generated is greater than the predefined maximum number of items, further improving the second list of recommendations in accordance with the predefined source domains in the request.

18. The method of claim 17, wherein the step of further improving comprises:  
separating the second list of recommendations into a plurality of groups in accordance with the predefined source domains;  
(a) traversing each group one at a time, selecting a recommendation having the highest correlation value to form a fourth list of recommendations;  
(b) repeating step (a) until the fourth list of recommendations equal to the predefined maximum number of items; and  
returning the fourth list of recommendations.
19. A system for generating recommendations over a computer network, comprising:  
a plurality of domain servers for handling user events via the Internet;  
a database for storing the user events; and  
a recommendation engine including one or more computer programs containing instructions for:  
collecting the user events across a plurality of domains in the database;  
receiving a triggering event for recommendation;  
analyzing the user events to formulate correlations between the user events in the database; and  
generating recommendations in response to the triggering event in accordance with the correlations between the user events in the database.
20. The system of claim 19, wherein the instructions for collecting user events comprise instructions for:  
receiving a user event from the plurality of domains, wherein the user event includes one or more user event parameters;  
validating the user event parameters in accordance with a predetermined set of rules;  
if the user event fails to meet one of the predetermined set of rules, rejecting the user event; and  
if the user event meets the predetermined set of rules, storing the user event in the database.

21. The system of claim 20, wherein the instructions for validating a particular user event parameter comprise instructions for:
- if the particular user event parameter exists in the database, continue validating another user event parameter until all user event parameters are validated; and
  - if the particular user event parameter does not exist in the database, checking whether a predefined dynamic updating configuration corresponding to the particular user event parameter is enabled;
  - if the dynamic updating configuration corresponding to the particular user event parameter is enabled, adding the particular user event parameter to the database; and
  - if the dynamic updating configuration corresponding to the particular user event parameter is not enabled, rejecting the user event.
22. The system of claim 20, wherein the instructions for validating the user event parameters comprise instructions for:
- validating the user event domain;
  - validating the user event type;
  - validating the user event value;
  - validating the user event item; and
  - validating the user identifier.
23. The system of claim 19, wherein the instructions for analyzing the user events comprise instructions for:
- applying a collaborative filter on the user events to compute correlation values between the user events; and
  - storing the correlation values in a similarity database.
24. The system of claim 19, the computer programs of the recommendation engine further comprising instructions for:
- receiving a request for recommending similar items; and
  - generating recommendations of similar items in accordance with the correlations between user events in the database.
25. The system of claim 24 further comprising instructions for generating recommendations of similar items in accordance with a priority scheme.

26. The system of claim 24, wherein the instructions for generating recommendations of similar items comprise instructions for:

validating the request, wherein the request includes a set of predefined parameters;  
if source domains are specified, generating a first list of recommendations in accordance with the source domains; and

if the source domains are not specified, generating the first list of recommendations in accordance with all available domains in the database.

27. The system of claim 26, wherein the instructions for generating the first list of recommendations comprise instructions for:

if the first list of recommendations is less than or equal to a predefined minimum number of items, returning the first list of recommendations; and

if the first list of recommendations is greater than the predefined minimum number of items, improving the first list of recommendations in accordance with correlation values and the set of predefined parameters.

28. The system of claim 27, wherein the instructions for improving the first list of recommendations comprise instructions for:

forming a second list of recommendations from items of the first list of recommendations having a correlation value above a predefined threshold;

if the second list of recommendations is less than or equal to the predefined minimum number of items, selecting a third list of recommendations comprising the minimum number of items prioritized according to correlation value from items of the first list of recommendations and returning the third list of recommendations;

if the second list of recommendations is greater than the predefined minimum number of items, improving the second list of recommendations in accordance with the correlation values and the set of predefined parameters.

29. The system of claim 28, wherein the instructions for improving the second list of recommendations comprise instructions for:

if the second list of recommendations is less than or equal to a predefined maximum number of items, returning the second list of recommendations; and

if the second list of recommendations generated is greater than the predefined maximum number of items, further improving the second list of recommendations in accordance with the predefined source domains in the database.

30. The system of claim 29, wherein the instructions for further improving comprise instructions for:

separating the second list of recommendations into a plurality of groups in accordance with the predefined source domains;

(a) traversing each group one at a time, selecting a recommendation having the highest correlation value to form a fourth list of recommendations;

(b) repeating step (a) until the fourth list of recommendations equal to the predefined maximum number of items; and

returning the fourth list of recommendations.

31. The system of claim 19, the computer programs of the recommendation engine further comprising instructions for:

receiving a request for recommending personalized items; and

generating personalized recommendations in accordance with the correlations between user events in the database.

32. The system of claim 31, wherein the instructions for generating the personalized recommendations comprise instructions for:

validating the request, wherein the request includes a set of predefined parameters;

retrieving a first list of items the user has shown preference from the database, wherein each item has a correlation value greater than or equal to a predefined threshold;

(a) creating a set of recommendations of similar items for each item the user has shown preference;

(b) storing the set of recommendations of similar items into a first list of recommendations; and

(c) repeating steps (a) and (b) until all members of the first list of items are traversed; and

refining the first list of recommendations in accordance with the correlation values and a set of predefined parameters.

33. The system of claim 32, wherein instructions for refining the first list of recommendations comprise instructions for:

if the first list of recommendations is less than or equal to the predefined minimum number of items, returning the first list of recommendations; and



if the first list of recommendations is greater than the predefined minimum number of items, improving the first list of recommendations in accordance with the correlation values and the set of predefined parameters.

34. The system of claim 33, wherein instructions for improving the first list of recommendations comprise instructions for:

forming a second list of recommendations from items of the first list of recommendations having a correlation value above a predefined threshold;

if the second list of recommendations is less than or equal to the predefined minimum number of items, selecting a third list of recommendations comprising the minimum number of items prioritized according to correlation value from items of the first list of recommendations and returning the third list of recommendations;

if the second list of recommendations is greater than the predefined minimum number of items, improving the second list of recommendations in accordance with the correlation values and the set of predefined parameters.

35. The system of claim 34, wherein instructions for improving the second list of recommendations comprise instructions for:

if the second list of recommendations is less than or equal to a predefined maximum number of items, returning the second list of recommendations; and

if the second list of recommendations generated is greater than the predefined maximum number of items, further improving the second list of recommendations in accordance with the predefined source domains in the database.

36. The system of claim 35, wherein the instructions for further improving comprise instructions for:

separating the second list of recommendations into a plurality of groups in accordance with the predefined source domains;

(a) traversing each group one at a time, selecting a recommendation having the highest correlation value to form a fourth list of recommendations;

(b) repeating step (a) until the fourth list of recommendations equal to the predefined maximum number of items; and

returning the fourth list of recommendations.

37. A computer program product, comprising a medium storing computer programs for executing by one or more computer systems, the computer program comprising:

a recommendation module for generating recommendations across multiple product or service domains, wherein the recommendation module is used in conjunction with at least a processing unit, a user interface, and a database, and the recommendation module includes one or more computer programs containing instructions for:

collecting the user events across a plurality of domains in the database;

receiving a triggering event for recommendations;

analyzing the user events to formulate correlations between the user events in the database; and

generating recommendations in response to the triggering event in accordance with the correlations between the user events in the database.